UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>24 July 2008</u>.

2a) ☒ This action is FINAL.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-42</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-42</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the communication filed on 7/24/2008.

2.   Claims 1-42 are pending.

Response to Arguments

3.   Applicant's arguments have been fully considered but they are unpersuasive.

4.   First, applicant argues that the prior art does not teach "a single Ethernet

connector… concurrently handle a plurality of different types of traffic." This argument is

respectfully traversed. Philbrick clearly shows and discloses that a single L2 SAN

connector can run SCSI over TCP/IP (SCSI (first traffic) over TCP/IP (first and second

traffics using a same protocol stack) (Philbrick, [0065] lines 15-17). Satran et al. in draft-

ietf-ips-iscsi-07.txt discloses that (iSCSI) communication between a client (initiator) and

server (target) occurs over one or more TCP connections (1.2.1, par. 1-4). One skilled

in the art would appreciate that layer 4 TCP/IP (described in [0050] by Philbrick) is

inherently supported in an iSCSI. Therefore, SCSI over TCP supports both SCSI traffic

and TCP traffic. Furthermore, given the broadness of "traffic types," many sections in

Philbrick disclose handling at least two traffics over a same fabric (fig. 14, [0084],

[0085], NAS traffic and network storage traffic over network line 644, utilizing iSCSI and

TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099],

fast path audio and video traffics and real time voice/video traffics and NAS, RTP/RTCP

and SIP and MGCP)

5.   Second, argument in the last par. on p. 16 is vague. The port that is connected to

the INIC (Philbrick, [0065] line 8) is read as the connector. While the media access

control module 722 (Philbrick, fig. 24) is read as an L2 interface card.

6.   Third, on p. 20 of the Remarks, applicant argues that the path is not "for a

server." This argument is respectfully traversed. It is vague what "a single fabric for a

server" has anything to do with that the fabric has to be routed to the server. In other

words, the claim does not require traffics to be routed to the server. Any single path

containing two traffics from the L2 connector to any point can be read as "a single fabric

for a server". And the path is disclosed by Philbrick, (fig. 6, [0065] lines 15-17, single

SAN path containing 2 traffics)

7.   Remaining arguments are unpersuasive because of the rationale given in the first

argument.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
>
> another filed in the United States before the invention by the applicant for patent or (2) a patent
>
> granted on an application for patent by another filed in the United States before the invention by the
>
> applicant for patent, except that an international application filed under the treaty defined in section
>
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
>
> only if the international application designated the United States and was published under Article 21(2)
>
> of such treaty in the English language.

9.   Claims 18, 20, 22-29, 31, 32 and 36-41 are rejected under 35 U.S.C. 102(e) as

being anticipated by Philbrick et al. (US 2001/0037406, hereafter Philbrick).

10.   For claim 18, Philbrick discloses a server, comprising:

- an integrated chip (fig. 6, processor 408);

- a single Ethernet connector coupled to the integrated chip ([0066] lines 12-15,

    Ethernet connector 424 which is a MAC controller), wherein the Ethernet

    connector and the integrated chip can concurrently handle a plurality of different

    types of traffic ([0065] lines 15-21, at least two traffics iSCSI and TCP/IP, fig. 14,

    [0084], [0085], NAS traffic and network storage traffic over network line 644,

    utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and TCP/NetBios/SMB, fig.

    15, [0093], [0097], [0099], fast path audio and video traffics and real time

    voice/video traffics and NAS, RTP/RTCP and SIP and MGCP)).

11.   For claim 20, Philbrick further discloses the server has a single Internet protocol

(IP) address ([0053] IP address).

12.   For claim 22, Philbrick further discloses the Ethernet connector handles the

plurality of different types of traffic over a single fabric (fig. 6, single path from Ethernet

connector 424 to processor 408).

13.   For claim 23, Philbrick further discloses the Ethernet connector comprises a

single Ethernet connector (fig. 6, single Ethernet connector 424).

14.   For claim 24, Philbrick further discloses the integrated chip comprises a single

integrated chip (fig. 6, single chip 408).

15.   For claim 25, Philbrick further discloses the plurality of different types of traffic

comprises at least two of network traffic, storage traffic, interprocess communication

(IPC) traffic and cluster traffic ([0065] lines 15-21, network traffic TCP/IP and storage

traffic iSCSI).

16.   For claim 26, Philbrick discloses a method for communication, the method

comprising:

using a single fabric for a plurality of different types of traffic (fig. 6, single path from a

Ethernet connector 424 to processor 408); and

routing the plurality of different types of traffic for a server via a single fabric comprising

a single layer 2 (L2) connector ([0065] lines 15-21, at least two traffics network traffic

TCP/IP and storage traffic iSCSI).

        concurrently handling the plurality of different types of traffic for the server via the

single L2 connector ([0065] lines 15-21, single L2 SAN connector for network traffic

TCP/IP and storage traffic SCSI, fig. 14, [0084], [0085], NAS traffic and network storage

traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and

TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video traffics and

real time voice/video traffics and NAS, RTP/RTCP and SIP and MGCP).

17.   For claim 27, Philbrick further discloses the single fabric comprises an Ethernet-

based fabric ([0065], Ethernet-SCSI fabric).

18.   For claim 28, Philbrick further discloses the single fabric comprises a transport

protocol/network protocol-based fabric ([0065] lines 15-21, network traffic TCP/IP).

19.   For claim 29, Philbrick further discloses routing said plurality of different types of

traffic for said server comprises accessing a storage device via the single L2 connector

([0065] lines 15-21, storage traffic iSCSI).

20.   For claim 31, Philbrick further discloses routing said plurality of different types of

traffic for said server comprises accessing a network via the single L2 connector ([0065]

lines 15-21, network traffic TCP/IP).

21.   For claim 32, Philbrick further discloses routing said plurality of different types of

traffic for said server comprises handling the plurality of different types of traffic via an

Ethernet connector of the server ([0065] lines 15-21, network traffic TCP/IP and storage

traffic iSCSI).

22.   For claim 36, Philbrick discloses a system for communication, the system
comprising: an integrated circuit that enables concurrent processing of a plurality of
different types of traffic that are received via a single layer 2 (L2) connector that is
communicatively coupled to said integrated circuit (fig. 6, [0065] lines 15-21, a single L2
SAN connector or port in an INIC (integrated circuit) for at least two traffics (SCSI and
TCP/IP traffics), fig. 14, [0084], [0085], NAS traffic and network storage traffic over
network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and
TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video traffics and
real time voice/video traffics and NAS, RTP/RTCP and SIP and MGCP).

23.   For claim 37, Philbrick discloses said integrated circuit is an integrated chip that
comprises a layer 2 network interface card (L2 NIC) ([0065] lines 7-11, Ethernet, fig. 24,
MAC controller), a transmission control protocol (TCP) processor, an iSCSI processor
([0065] lines 15-21, iSCSI processing over TCP/IP) and a remote direct memory access
(RDMA) processor (fig. 25, DMA controller).

24.   For claim 38, Philbrick discloses said plurality of different types of network traffic
comprises at least two of a network traffic, storage traffic, interprocess communication
(IPC) traffic and cluster traffic (fig. 6, [0065] lines 15-21, a single L2 SAN connector in
an INIC (integrated circuit) for both storage SCSI traffic and network TCP/IP traffic).

25.   For claims 39-41, the claims are rejected for the same rationale as in claims 36-

38 respectively.

Claim Rejections - 35 USC § 103

26.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
>
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
>
> the prior art are such that the subject matter as a whole would have been obvious at the time the
>
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
>
> Patentability shall not be negatived by the manner in which the invention was made.

27.   Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art (background of the invention and fig. 1-5, hereafter

AAPA) and further in view of Philbrick.

28.   For claim 1, AAPA discloses a data center, comprising:

- a first tier comprising a first server; a second tier coupled to the first tier, the

  second tier comprising a second server; and a third tier coupled to the second

  tier, the third tier comprising a third server (fig. 1, servers A, B, and C connected

  in three tiers)

  AAPA does not disclose:

- wherein at least one of the first server, the second server and the third server

  handles a plurality of different traffic types over a single fabric.

  However, Philbrick discloses:

- wherein one or more of the first server, the second server and/or the third server

  handles a plurality of different traffic types concurrently over a single fabric using

  a single connector (fig. 6, [0065], a server handles for at least two traffics such as

  iSCSI and TCP/IP over a single fabric connecting the Ethernet connector 424

  and processor 408, fig. 14, [0084], [0085], NAS traffic and network storage traffic

  over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085], iSCSI and

  TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video

  traffics and real time voice/video traffics and NAS, RTP/RTCP and SIP and

  MGCP).

  Therefore, it would have been obvious for one skilled in the art at the time of the

invention to combine the teachings of AAPA and Philbrick to apply multiple traffic

support over one fabric of Philbrick to the three-tier servers of AAPA to conserve

resources (Philbrick, [0065], lines 1-4, storage traffic and network traffic without the

need of a specialized connector).

29.   For claim 2, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the first server handles at least network traffic and direct attached

storage (DAS) traffic over the single fabric (Philbrick, [0065] lines 15-21, DAS traffic or

SCSI).

30.   For claim 3, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the first server uses a single controller for handling at least network

traffic and DAS traffic (Philbrick, fig. 6 single processor on a single intelligent network

interface controller INIC).

31.   For claim 4, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the second server handles at least two of network traffic, storage

traffic, interprocess communication (IPC) traffic and cluster traffic over the single fabric

(Philbrick, [0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

32.   For claim 5, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the second server uses a single controller for handling at least two of

network traffic, storage traffic, interprocess communication (IPC) traffic and cluster

traffic (Philbrick, fig. 6, single processor on a single intelligent network interface

controller INIC).

33.   For claim 6, AAPA-Philbrick discloses the invention as in claim 5. AAPA-Philbrick

further discloses storage traffic comprises traffic from a redundant-array-of-

independent-disks (RAID) configuration or traffic from storage devices accessible via a

network (Philbrick, [0011], RAID).

34.   For claim 7, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the second tier comprises an application tier (AAPA, [05] line 8).

35.   For claim 8, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the third server handles at least two of network traffic, storage traffic,

interprocess communication (IPC) traffic and cluster traffic over the single fabric

(Philbrick, [0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

36.   For claim 9, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick

further discloses the third server uses a single controller for handling at least two of

network traffic, storage traffic, interprocess communication (IPC) traffic and cluster

traffic (Philbrick, fig. 6, single processor on a single intelligent network interface

controller INIC).

37.   For claim 10, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick further discloses the single fabric is based upon a layer 2 (L2) protocol

(Philbrick, fig. 6, single fabric has a MAC controller).

38.   For claim 11, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick further discloses the single fabric is based upon an Ethernet (Philbrick, fig. 12,

13, Ethernet stack).

39.   For claim 12, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick further discloses the single fabric is based upon a transport/network protocol

(Philbrick, fig. 12, 13, TCP stack).

40.   For claim 13, AAPA-Philbrick discloses the invention as in claim 12. AAPA-

Philbrick further discloses the transport/network protocol comprises a transmission

control protocol/Internet protocol (TCP/IP) (Philbrick, fig. 13, TCP/IP).

41.   For claim 14, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick further discloses one or more of the first server, the second server and/or the

third server uses an Internet small computer system interface (iSCSI) protocol in

communicating with storage (Philbrick, [0065] line 19, iSCSI over TCP).

42.   For claim 15, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick further discloses the iSCSI protocol runs on top of TCP/IP (Philbrick, [0065]

line 19).

43.   Claims 33-35, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Philbrick as applied to claim 26 above, and further in view of Microsoft

(03/03/2001, Winsock Direct and Protocol Offload on SANs).

44.   For claim 33, Philbrick discloses a method for communication, the method

comprising:

In a data center, accessing a storage system over a single fabric, wherein said single

fabric comprises a single layer 2 (L2) connector that is enabled to concurrently handle a

plurality of different types of traffic ([0065] lines 15-21, single L2 connector for network

traffic TCP/IP and storage traffic SCSI, fig. 14, [0084], [0085], NAS traffic and network

storage traffic over network line 644, utilizing iSCSI and TCP/NetBios/SMB, [0085],

iSCSI and TCP/NetBios/SMB, fig. 15, [0093], [0097], [0099], fast path audio and video

traffics and real time voice/video traffics and NAS, RTP/RTCP and SIP and MGCP); and

accessing a network over the single fabric ([0065] lines 15-21, network traffic TCP/IP

and storage traffic SCSI).

        Philbrick does not explicitly disclose accessing a cluster over the single fabric.

        However, Microsoft discloses accessing a cluster over the single fabric (fig. 2,

page 5 lines 7-8, RDMA support for clustering traffic, RDMA running over TCP/IP).

        Therefore, it would have been obvious for one skilled in the art at the time of the

invention to combine the teachings of Philbrick and Microsoft to further provide more

functions such as RDMA support on a iSCSI enabled NIC of Philbrick.

45.   For claim 30, the claim is rejected for the same rationale as in claim 33.

46.   For claim 34, Philbrick-Microsoft discloses the invention as in claim 33. Philbrick-

Microsoft further discloses said accessing to said storage system over said single fabric

are performed over a single Ethernet connector of a server in the data center (Philbrick,

fig. 6, single Ethernet connector 424).

47.   For claim 35, Philbrick-Microsoft discloses the invention as in claim 33. Philbrick-

Microsoft further discloses the single Ethernet connector has a single Internet protocol

(IP) address (Philbrick, [0053] IP address).

48.   Claims 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

AAPA-Philbrick, as applied to claims 1 and 14 above, and further in view of Microsoft.

49.   For claim 17, AAPA-Philbrick discloses the invention as in claim 1. AAPA-

Philbrick does not disclose one or more of the first server, the second server and/or the

third server uses an RDMAP for interprocess communication.

        However, Microsoft discloses accessing a cluster over the single fabric (fig. 2,

page 5 lines 7-8, RDMA support for clustering traffic, RDMA running over TCP/IP).

        Therefore, it would have been obvious for one skilled in the art at the time of the

invention to combine the teachings of Philbrick and Microsoft to further provide more

functions such as RDMA support on a iSCSI enabled NIC of Philbrick.

50.   For claim 16, the claim is rejected for the same rationale as in claim 17.

51.   Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Philbrick, in view of what has been known in the art.

52.   For claim 19, Philbrick discloses the invention as in claim 18. Philbrick does not

explicitly disclose the server comprises a blade server, and wherein the integrated chip

is part of a blade mounted in the blade server.

       However, it is well known that the server comprises a blade server, and wherein

the integrated chip is part of a blade mounted in the blade server.

       Therefore, it would have been obvious for one skilled in the art at the time of the

invention to apply Philbrick to a blade server system to make use of advantages of a

blade server system such as high space density.

53.   For claim 21, the claim is rejected for the same rationale as in claim 19.

Conclusion

54.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

       A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

55.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-

1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m.,

EST.

         If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

   Information regarding the status of an application may be obtained from the Patent

   Application Information Retrieval (PAIR) system. Status information for published

   applications may be obtained from either Private PAIR or Public PAIR. Status

   information for unpublished applications is available through Private PAIR only. For

   more information about the PAIR system, see http://pair-direct.uspto.gov. Should

   you have questions on access to the Private PAIR system, contact the Electronic

   Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from

   a USPTO Customer Service Representative or access to the automated information

   system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

/Kenny S Lin/

Primary Examiner, Art Unit 2152